



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,214	04/06/2001	Koichi Ihata	111286	6202

909 7590 08/21/2002
PILLSBURY WINTHROP, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

LE, DANG D

ART UNIT	PAPER NUMBER
----------	--------------

2834

DATE MAILED: 08/21/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/827,214	IHATA, KOICHI	
	Examiner	Art Unit	
	Dang D Le	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "frame for supporting said rotor and stator, said frame having an air intake window" in claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. The specification does not disclose such feature. The drawings show only the air intake window formed in the rear cover.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 13 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application

was filed, had possession of the claimed invention. Claim 13 recites "a frame for supporting said rotor and stator, said frame having an air intake window". However, the specification and drawings do not disclose such feature.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 14 recites the limitation "said cooling air passage" in last line. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 2 and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nimura et al. (U. S. Pat. No. 4,926,076) in view of Adachi et al. (U. S. Pat. No. 5,686,780).

Regarding claim 1, Nimura et al. show a vehicle AC generator (Figures 1-3) comprising:

- A rotor having a field coil (7);
- A stator having an armature coil (3b);

- A frame (1, 1') for supporting said rotor and stator;
- A rear cover (19) fixed to said frame, said rear cover having an air intake window (19a);
- A pair of C-shaped positive and negative cooling fins (15, Figures 1 and 3) having a common cutout section (Figure 2) at a half side thereof (top left) thereby forming an accommodation space between said frame and said rear cover, said cooling fins being fixed to said frame to overlap each other in an axial direction (Figure 3); a plurality of positive and negative rectifier elements (151-153) respectively fixed to said pair of positive and negative cooling fins at the other half side thereof;
- A pair of brushes (16a) for supplying field current to said rotor;
- A brush-holder (16), disposed in said accommodation space, for holding said pair of brushes;
- A connector case (171) disposed in said accommodation space radially outside said brush holder so as to form a cooling air passage (Figure 3) connecting to said air intake window (19a) between an outer periphery of said brush holder and said connector case, said connector case having a terminal (Figure 1) for transmitting and receiving electric signals; and
- An IC regulator (17), disposed in said cooling air passage around said connector case to face said rear cover (Figure 3), for controlling output voltage of said armature coil.

Nimura et al. do not show said IC regulator having a heat sink disposed in said cooling air passage opposite said air intake window of said rear cover.

Adachi et al. show said IC regulator (Figure 2 and 9) having a heat sink (84) disposed in said cooling air passage opposite said air intake window of said rear cover for the purpose of reducing heat.

Since Nimura et al. and Adachi et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to add a heat sink to said IC regulator and dispose it in said cooling air passage opposite said air intake window of said rear cover as taught by Adachi et al. for the purpose discussed above.

Regarding claim 2, it is noted that Nimura et al. also show said IC regulator (17) disposed between said connector case (171) and said rear cover (19).

Regarding claim 4, it is noted that Adachi et al. also shows said heat sink (84) of said IC regulator disposed closer to said rear cover than said cutout section (Figure 9).

Regarding claim 5, it is noted that Adachi et al. also shows said heat sink of said IC regulator disposed radially outside said connector case.

Regarding claim 6, it is noted that Nimura et al. also shows said cutout section including an axial passage (between 19a and 17, Figure 3) for conducting cooling air that has passed the outside surface of said IC regulator.

Regarding claim 7, it is noted that Adachi et al. also shows said heat sink having a plurality of projections forming parallel air passages extending in a radial direction along said air passage.

Regarding claim 8, it is noted that Adachi et al. also shows said brush holder being fastened to at least one of said connector case, said cooling fins and said frame so that said brush holder can be fixed at a preset position.

Regarding claim 9, it is noted that Adachi et al. also show a noise suppressing capacitor (641, Figures 1 and 2) disposed in said cutout section for the purpose of reducing noise.

Regarding claim 10, it is noted that Nimura et al. also shows said IC regulator comprising a one chip IC that includes a power transistor (81) for controlling said field current.

Regarding claim 11, it is noted that Nimura et al. also shows a vehicle AC generator comprising:

- A rotor having a field coil (7) and a pair of slip rings (10) connected to said field coil;
- A stator having an armature coil (3b);
- A frame (1, 1') for supporting said rotor and stator;
- A rear cover (19) fixed to said frame, said rear cover having an air intake window (19a);
- A rectifying unit including a pair of positive and negative cooling fins (15) and a plurality of positive and negative rectifier elements (151-153) respectively

- fixed to said pair of positive and negative cooling fins, said pair of cooling fins having a common cutout section (Figure 2) at the middle thereof thereby forming an accommodation space between said frame and said rear cover;
- A brush unit including a pair of brushes (16a) in contact with said pair of slip rings and a brush-holder (16) for holding said pair of brushes, said brush holder being disposed in said accommodation space;
 - A connector case (171) disposed in said accommodation space radially on a side of said brush holder (top) behind said rectifier element (Figure 3) so as to form a cooling air passage connecting to said air intake window along said connector case, said connector case having a terminal for transmitting and receiving electric signals; and
 - An IC regulator (17), disposed in said cooling air passage around said connector case to face said rear cover, for controlling output voltage of said armature coil.

In addition, it is noted that Adachi et al. also show said IC regulator having a heat sink (84) disposed opposite said air intake window of said rear cover (Figure 9).

Regarding claim 12, it is noted that Nimura et al. also shows a vehicle AC generator comprising:

- A rotor having a field coil (7) and a pair of slip rings (10) connected to said field coil;
- A stator having an armature coil (3b);
- A frame (1, 1') for supporting said rotor and stator;

- A rear cover (19) fixed to said frame, said rear cover having an air intake window (19a);
- A rectifying unit including a pair of positive and negative cooling fins (15) and a plurality of positive and negative rectifier elements respectively fixed to said pair of positive and negative cooling fins, said pair of cooling fins having a common cutout section at the middle thereof thereby forming an accommodation space between said frame and said rear cover;
- A brush unit including a pair of brushes (16a) in contact with said pair of slip rings and a brush-holder (16) for holding said pair of brushes, said brush holder being disposed in said accommodation space;
- A connector case (171) disposed in said accommodation space on a side of said brush holder behind said rectifier elements, said connector case having a terminal for transmitting and receiving electric signals;
- Wherein said connector case (171) is disposed in said accommodation space so as to form a cooling air passage connecting to said air intake window along said connector case;
- Said IC regulator (17) disposed in said cooling air passage around said connector case to face said rear cover.

In addition, it is noted that Adachi et al. also show an IC regulator having a heat sink (84) for controlling output voltage of said armature coil and said heat sink disposed opposite said air intake window of said rear cover (Figure 9).

Regarding claim 13, it is noted that Nimura et al. also show a vehicle AC generator (Figures 1-3) comprising:

- A rotor having a field coil (7) and a shaft;
- A stator having an armature coil (3b);
- A frame (1, 1') for supporting said rotor and stator;
- A pair of positive and negative cooling fins (15, Figures 1 and 3) fixed to said frame, said pair of cooling fins having a common cutout section (Figure 2) at a half side thereof (top left) thereby forming an accommodation;
- A plurality of positive and negative rectifier elements (151-153) respectively fixed to said pair of positive and negative cooling fins at the other half side thereof;
- A brush unit (16) disposed in said accommodation space;
- A connector case (171) having an outer surface, said connector case being disposed in said accommodation space so as to form a cooling air passage (Figure 3) connecting to the air intake window (19a); and
- An IC regulator (17) in said cooling air passage opposite said air intake window.

In addition, it is noted that Adachi et al. also show the frame (2) having an air intake window (21) and said IC regulator (Figure 2 and 9) having a heat sink (84) having a plurality of projections extending along said air passage, thereby guiding air from said air intake window along said cooling air passage into the inside of the frame (2) without contacting any of the rectifier elements.

Regarding claim 14, it is noted that Nimura et al. also show a vehicle AC generator (Figures 1-3) comprising:

- A rotor;
- A stator;
- A frame (1, 1') for supporting said rotor and stator;
- A rear cover (19) disposed at a rear end of the frame, said rear cover having an air intake window (19a);
- A pair of C-shaped cooling fins (15, Figures 1 and 3) having a common cutout section (Figure 2) at the middle thereof (top left) disposed between said frame and said rear cover, thereby forming an accommodation space between said frame and said rear cover;
- A plurality of rectifier elements (151-153) respectively fixed to said pair of cooling fins at the other half side thereof;
- A brush unit (16), disposed in said accommodation space;
- A connector case (171) disposed in said accommodation space at a side of said brush unit behind said rectifier elements; and
- An IC regulator (17) disposed in said cooling air passage.

In addition, it is noted that Adachi et al. also show said IC regulator (Figure 2 and 9) having a heat sink (84) disposed in said cooling air passage (Figure 9).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nimura et al. in view of Adachi et al. as applied to claim 1 above, and further in view of Kitamura et al.

Regarding claim 3, the generator of Nimura et al. modified by Adachi et al. includes all of the limitations of the claimed invention except for said IC regulator disposed between said brush holder and said rear cover.

Kitamura et al. show the IC regulator (15) disposed between said brush holder (13) and said rear cover (2) for the purpose of cooling the regulator.

Since Nimura et al., Adachi et al. and Kitamura et al. are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to dispose said IC regulator between said brush holder and said rear cover as taught by Kitamura et al. for the purpose discussed above.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Information on How to Contact USPTO

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
August 17, 2002

DL

